AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Original) An implantable device comprising:

a surface containing a plurality of first zones and a plurality of second zones depressed relative to the first zones so as to provide valleys below a plane defined by the first zones, wherein a first zone to second zone width ratio is non-random throughout the device; and

a biologically active agent in the valley,

wherein the device is adapted to be implanted within an organism such that when said surface is subjected to a flow causing a fluid-induced shear stress, the second zone has a reduced level of the fluid-induced shear stress relative to the first zone in an amount adequate to selectively retain the biologically active agent within the valley.

2. (Original) The device of claim 1, wherein the first zone to second zone width ratio is less than 1.

3. (Original) The device of claim 1, wherein the first zones and the second zones are non-randomly distributed across the surface.

4. (Original) The device of claim 1, wherein the reduced level of the fluid-induced shear stress is at least 20% less than a fluid-induced shear stress of the first zone.

5. (Original) The device of claim 1, wherein the reduced level of the fluid-induced shear stress is about 20% to about 100% less than a fluid-induced shear stress of the first zone.

6. (Original) The device of claim 1, wherein a geometrical shape of each of the first zone and the second zone and/or a depth of the valleys are non-random.

7. (Original) The device of claim 1, wherein the depth of the valleys is at least 0.1 μm below the plane.

8. (Original) The device of claim 1, wherein the valley is at least one of an open valley, a partially closed valley, and a closed valley. (. In one embodiment, the valley has one

opening, i.e., partially closed valley. In another embodiment, the valley has two openings, i.e., an open valley, wherein the openings are preferably disposed on opposite ends of the valley, i.e., an open-ended channel. In yet another embodiment, the valley is completely surrounded by at least one wall, e.g., a half of a sphere, or two walls, e.g., a closed ended channel, to form a closed valley (long and skinny).

9. (Original) The device of claim 1, wherein the valleys are oriented to be at least one of (1) substantially parallel to the flow, (2) substantially perpendicular to the flow, and (3) disposed at a non-parallel and non-perpendicular angle to the flow.

10. (Original) The device of claim 1, wherein the biologically active agent is a cell.

11. (Original) The device of claim 1, wherein the device is adapted to deliver the biologically active agent to the organism upon implantation.

12. (Original) The device of claim 1, wherein the device is adapted to substantially retain the biologically active agent on the device upon implantation.

13. (Currently amended) The device of claim ~~13~~12, wherein the device is adapted to substantially retain the biologically active agent on the device upon implantation without being covalently bound to the device.

14. (Original) The device of claim 1, adapted for use as a vascular graft.

15. (Original) A method for producing the implantable device of claim 1, said method comprising:

providing a substrate having a surface;

providing the surface with the plurality of first zones and the plurality of second zones depressed relative to the first zones so as to provide valleys below a plane defined by the first zones,

selecting the first zone to second zone width ratio throughout the device such that when the device is implanted within an organism and said surface is subjected to a flow causing a fluid-induced shear stress, the second zone has a reduced level of the fluid-induced shear stress relative to the first zone in an amount adequate to selectively retain a biologically active agent within the valley, and thereby producing the implantable device.

16. (Currently amended) The method of claim ~~16~~15, wherein the first zone to second zone width ratio is less than 1.

17. (Original) The method of claim 16, further comprising selecting a geometrical shape of each of the first zone and the second zone and/or a depth of the valleys.

18. (Original) A method for delivering a biologically active agent to an organism, said method comprising:

providing the implantable device of claim 1;

regulating retaining of the biologically active agent on the implanted device by adapting the surface to have areas of a reduced level of a fluid-induced shear stress via a pattern of the first zones and the second zones provided on the surface; and

subjecting the device to a flow causing the fluid-induced shear stress by implanting the device within the organism, wherein the second zones have the reduced level of the fluid-induced shear stress relative to the first zones in an amount adequate to selectively release the biologically active agent on the implanted device and thereby delivering the biologically active agent to the organism.

19. (Currently amended) The method of claim ~~19~~18, wherein regulating comprises selecting the first zone to second zone width ratio, a geometrical shape of each of the first zone and the second zone and/or a depth of the valleys.

20. (Original) The method of claim 19, wherein the biologically active agent is a cell.

21. (Original) In a method of manufacturing of an implanted device having an outer surface adapted to retain endothelial cells, the improvement comprising regulating retaining of the endothelial cells on the surface by providing the device with areas of a reduced fluid-induced shear stress via a pattern of first zones and second zones provided on the surface, wherein the second zones are depressed relative to the first zones to provide valleys below a plane defined by the surface, wherein the pattern is chosen by selecting a first zone to second zone width ratio, a geometrical shape of each of the first zone and the second zone and/or a depth of the valleys such that the second zones have the reduced level of the fluid-induced shear stress relative to the first zones in an amount adequate to retain the endothelial cells on the implanted device.